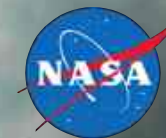


National Aeronautics and Space Administration



# Overview of Dynamic Airspace Configuration

Efficiency

Airspace

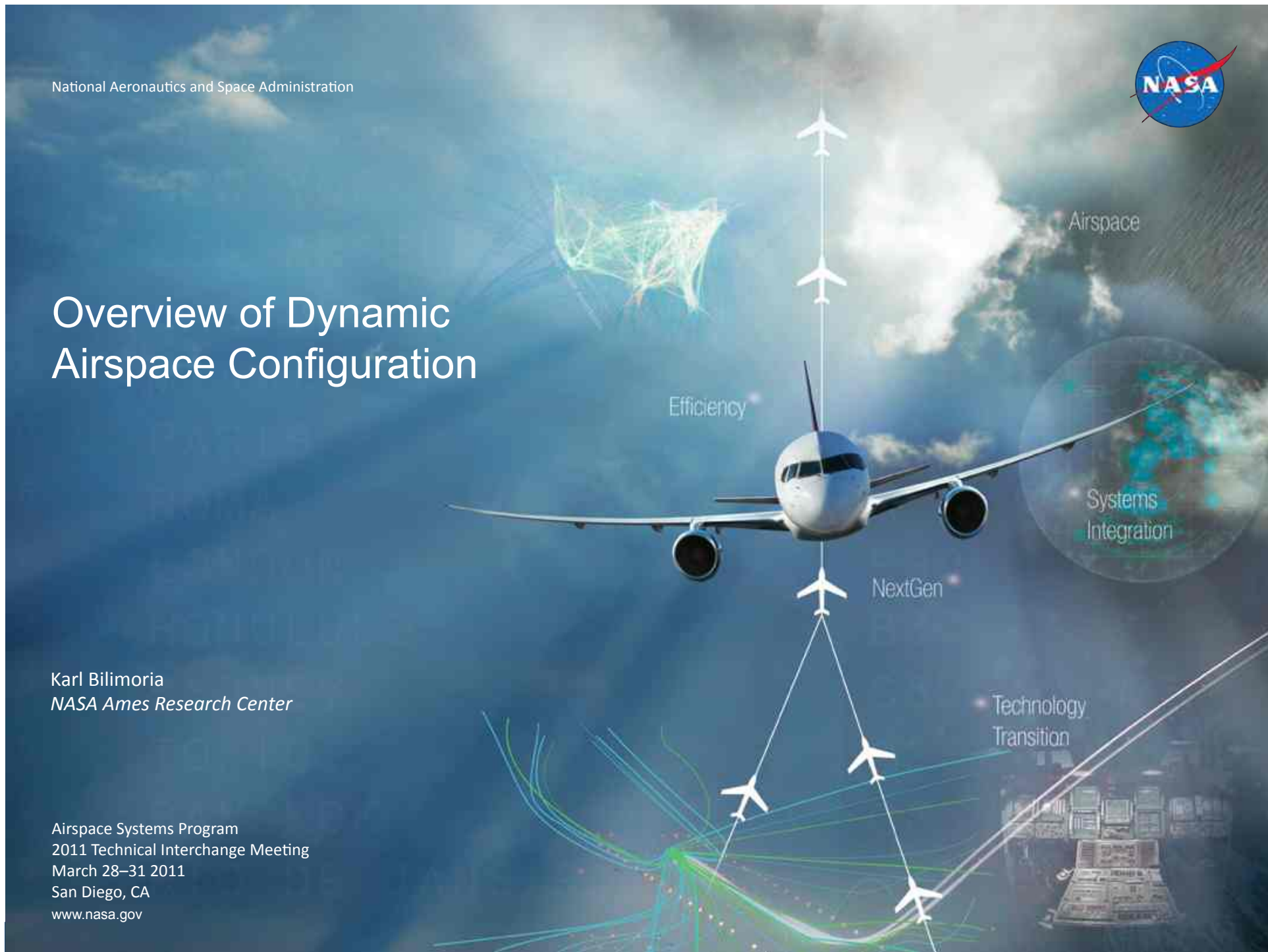
Systems  
Integration

NextGen

Technology  
Transition

Karl Bilimoria  
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Airspace Systems Program  
2011 Technical Interchange Meeting  
March 28–31 2011  
San Diego, CA  
[www.nasa.gov](http://www.nasa.gov)

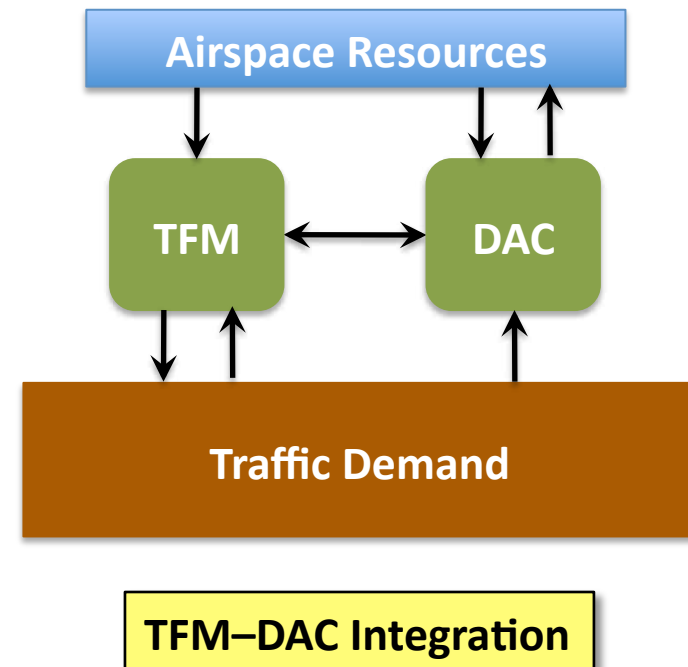


# Background



- Dynamic Airspace Configuration and Traffic Flow Management are complementary aspects of airspace supply-demand relationship
  - TFM modifies traffic demand to match available airspace resources
  - DAC modifies airspace resources to accommodate traffic demand

- DAC research areas
  - Restructured airspace
  - Generic airspace
  - Adaptable airspace



# Restructured Airspace



- Design new classes of airspace to provide user benefits
- Segregate traffic with different equipage/characteristics
  - Tube network can give priority to high-equipage aircraft
  - Flexible transition corridors can accommodate new types of vehicles such as unmanned aircraft systems (UAS) and commercial spacecraft
- Key questions
  - What operational concepts can provide system-level benefits?
  - What are the appropriate equipage requirements and mix for tubes?



**Tube Network**

# Generic Airspace



- Simplify airspace control functions to provide staffing flexibility
- Controllers currently need specialized knowledge of sectors
  - Examples: handoff frequencies, flow patterns, crossing restrictions
  - Certified on ~6 sectors in their Area of Specialization
- Key questions
  - How can we remove the need for some specialized information?
  - How should we present necessary specialized information to controllers?



**Controller Information Tool**

# Adaptable Airspace



- Dynamically adjust sector boundaries to accommodate:
  - Time-varying traffic volume/complexity
  - Modified traffic flows due to weather re-routing
- Key questions
  - What are the appropriate criteria for airspace design?
  - When and how should the sector boundaries be adjusted?
- Both questions have algorithmic and human factors aspects



**Airspace Design Tool**

# Presentations



- **Comparing Airspace Design Methods**

*Shannon Zelinski*

- **Benefit of Regional Airspace Reconfiguration in the Presence of Convective Weather**

*Jaewoo Jung*

- **Airspace Design and Assessment Tools**

*Tom Prevot*

- **Flexible Airspace Management**

*Paul Lee*

- **The Sector Combining Advisory Algorithm**

*Michael Bloem*



# Questions?



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